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## CLAIMS:

1. (currently amended) A method for welding objects having limited backside access to a cavity behind a region to be welded, the method comprising:  
inserting a fugitive backing material comprising a fusible material in an installation state into a first portion of the cavity proximate the region to be welded;  
transforming the fugitive backing material to a rigid state;  
forming a weld in the region so that a first portion of the fusible material facing the region becomes part of the formed weld; and  
transforming ~~the~~ a second portion of the fugitive backing material remaining unwelded to a removable state and removing the second portion ~~fugitive backing material~~ from the cavity.
2. (original) The method of claim 1, wherein transforming the fugitive backing material to a rigid state comprises compacting the fugitive backing material.
3. (original) The method of claim 1, wherein transforming the fugitive backing material to a rigid state comprises curing the fugitive backing material.
4. (original) The method of claim 1, wherein transforming the fugitive backing material to a rigid state comprises hardening the fugitive backing material.
5. (original) The method of claim 1, wherein transforming the fugitive backing material to a rigid state comprises allowing gravity to hold the fugitive backing material in a desired position.
6. (original) The method of claim 1, further comprising preventing the fugitive backing material from extending into the region to be welded while inserting the fugitive backing material into the cavity.

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7. (original) The method of claim 1, further comprising preventing the fugitive backing material from extending into the region to be welded while transforming the fugitive backing material to a rigid state.

8 (cancelled)

9. (original) The method of claim 8, wherein the fusible material comprises one of the group consisting of a metal powder and a brazing compound.

10 - 11. (cancelled)

12. (original) The method of claim 1, further comprising:  
mixing particles of the fugitive backing material with a binder to form a paste;  
inserting the paste in the cavity; and  
allowing the paste to harden.

13. (original) The method of claim 12, wherein the binder comprises one of the group consisting of sodium silicate and hydrolyzed ethyl silicate.

14 - 15. (cancelled)

16. (original) The method of claim 1, further comprising filling a second portion of the cavity with a second fugitive backing material.

17. (original) The method of claim 1, further comprising transforming the fugitive backing material to a comparatively more viscous state after inserting it into the cavity.

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18. (currently amended) The method of claim 1, further comprising transforming the second portion of the fugitive backing material to a comparatively less viscous state after welding.

19. (currently amended) The method of claim 18, further comprising removing the second portion of the fugitive backing material from the cavity after transforming it into a comparatively less viscous state.

20. (currently amended) The method of claim 1, wherein transforming the second portion of the fugitive backing material to a removable state comprises a process of chemical leaching.

21. (currently amended) The method of claim 1, wherein transforming the second portion of the fugitive backing material to a removable state comprises a process of melting.

22. (currently amended) The method of claim 1, wherein transforming the second portion of the fugitive backing material to a removable state comprises a process of sublimation.

23. (currently amended) The method of claim 1, wherein transforming the second portion of the fugitive backing material to a removable state comprises a process of dissolving.

24. (currently amended) The method of claim 1, wherein transforming the second portion of the fugitive backing material to a removable state comprises a process of releasing a force compacting the fugitive backing material.

25. (currently amended) The method of claim 1, wherein transforming the second portion of the fugitive backing material to a removable state comprises a process of flushing the fugitive backing material out of the cavity.

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26. (currently amended) The method of claim 1, wherein transforming the second portion of the fugitive backing material to a removable state comprises a process of allowing gravity to act on the fugitive backing material.

27. (original) A method for welding objects having limited backside access to a cavity behind a region to be welded, the method comprising:

placing a pre-formed weld backing in the cavity directly adjacent the region to be welded;

at least partially filling a portion of the cavity with a fugitive backing material to provide support for the pre-formed backing;

forming a weld in the region;

transforming the fugitive backing material to a removable state and removing the fugitive backing material from the cavity; and

removing the pre-formed weld backing from the cavity.

28. (original) The method of claim 27, further comprising transforming the fugitive backing material to a rigid state by one of the group consisting of compacting, curing, hardening, and allowing gravity to hold the fugitive backing material in a desired position after at least partially filling the portion of the cavity with the fugitive backing material.

29. (original) The method of claim 27, wherein the fugitive backing material is one of the group consisting of a metal powder, alumina, silica, quartz, and wax.

30. (original) The method of claim 27, wherein the fugitive backing material is removed by a process of dissolving.

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31. (original) The method of claim 27, wherein the fugitive backing material is removed by a process of:

heating the fugitive backing material to a melting temperature; and  
allowing the fugitive backing material to flow from an opening in the cavity.

32. (original) The method of claim 27, wherein the fugitive backing material is removed by a process of sublimation.

33. (original) The method of claim 27, wherein the fugitive backing material is removed by liquefying the fugitive backing material.